

Amphibia, Anura, Hylodidae, *Megaelosia apuana* Pombal, Prado and Canedo, 2003: Distribution extension, new state record and geographic distribution map

Patrícia da Silva Santos^{1,2*}, Emanuel Teixeira da Silva³, Bruno Henrique Barbosa Felhberg¹, Marcus Thadeu Teixeira Santos¹ and Paulo Christiano de Anchietta Garcia^{1,2}

¹ Universidade Federal de Minas Gerais, Instituto de Ciências Biológicas, Departamento de Zoologia, Laboratório de Herpetologia. Avenida Antônio Carlos, 6627, Pampulha. CEP 31270-901. Belo Horizonte, MG, Brasil.

² Universidade Federal de Minas Gerais, Programa de Pós Graduação em Ecologia Conservação e Manejo da Vida Silvestre. Avenida Antônio Carlos, 6627, Pampulha. CEP 31270-901. Belo Horizonte, MG, Brasil.

³ Centro Universitário de Caratinga, Centro de Estudos em Biologia. Avenida Niterói, s/n, Bairro Nossa Senhora das Graças. CEP 35300-000. Caratinga, MG, Brasil.

* Corresponding author. E-mail: patriciasantos234@gmail.com

ABSTRACT: In this study we report the first record of the giant torrent frog *Megaelosia apuana* in the state of Minas Gerais, southeastern Brazil. The finding of this species at Reserva Particular do Patrimônio Natural (RPPN) Mata do Sossego, municipality of Simonésia, east of Minas Gerais extends its geographic distribution by 120 km from the type locality, and 45 km northwest from its westernmost known record. A geographic distribution map is presented.

The genus *Megaelosia* (Miranda-Ribeiro, 1923) is distributed over the Serra do Mar and Serra da Mantiqueira Mountain ranges in southeastern Brazil, with records from the states of Espírito Santo, São Paulo and Rio de Janeiro (Giaretta *et al.* 1993; Frost 2010). Currently, the genus comprises seven species: *Megaelosia apuana* Pombal, Prado and Canedo, 2003, *Megaelosia bocainensis* Giaretta, Bokermann and Haddad, 1993, *Megaelosia boticariana* Giaretta and Aguiar, 1998, *Megaelosia goeldii* (Baumann, 1912), *Megaelosia jordanensis* (Heyer, 1983), *Megaelosia lutzae* Izecksohn and Gouvêa, 1987 and *Megaelosia massarti* (De Witte, 1930) (Frost 2010). *Megaelosia apuana* was described from the fountainhead of Rio Jacu (41°01'21"S, 20°26'16"W; approximately 1,200 m above sea level) next to Parque Estadual de Pedra Azul (Pedra Azul State Park), municipality of Domingos Martins, state of Espírito Santo, southeastern Brazil (Pombal Jr. *et al.* 2003; Pombal Jr. 2004). Tadpoles of this species were observed at Parque Estadual da Pedra Azul (Pombal Jr. 2004). The westernmost occurrence of the species is at the Parque Nacional do Caparaó (Caparaó National Park) at the boundary of Espírito Santo and Minas Gerais states (Verdade and Rodrigues 2008).

The species of *Megaelosia* (giant torrent frogs) are known to inhabit mountain streams of the Atlantic Forest (Giaretta *et al.* 1993; Giaretta and Aguiar Jr. 1998). *Megaelosia apuana* is associated with clean, cold upland streams with lentic water pools (Pombal Jr. 2004). This species probably has a low population density and does not tolerate habitat modification, similar to other members of the genus (Pombal Jr. 2004). Thus, *M. apuana* is considered Vulnerable by the Red List of Threatened Species of the state of Espírito Santo (Espírito Santo 2005), and Data Deficient by the IUCN Red List (IUCN 2010) due to the limited amount of information currently available

on its extent of occurrence, population status, threats and ecological requirements (Pombal Jr. 2004).

During a herpetofaunal inventory on a locality in the eastern region of Minas Gerais, we found specimens (adults and larvae) of *M. apuana* (Figure 1) in a stream called "Córrego Sossego" at the Reserva Particular do Patrimônio Natural (RPPN) Mata do Sossego (20°04'22.1" S, 42°04'12.8" W), municipality of Simonésia, Doce River watershed. This locality extends the species range by 120 km from the type locality and 45 km northwest from its known record at Parque Nacional do Caparaó (Figure 2). The reserve is managed by Fundação Biodiversitas and is located in a preserved fragment of semi-deciduous forest with an area of ca. 900 ha, with altitudes ranging from 1,200 to 1,639 m. The region has many well-preserved streams, but the surroundings of the reserve are composed of *Eucalyptus* sp. (Myrtaceae) and *Coffea arabica* (Rubiaceae) plantations, which are the main cultivars in this region.



FIGURE 1. Adult female of *Megaelosia apuana* (UFMG 5741; SLV: 95.5 mm) collected at RPPN Mata do Sossego, municipality of Simonésia, east of Minas Gerais, southeastern Brazil. Photo by Patrícia S. Santos.

The RPPN Mata do Sossego is considered as a “Potential” category for amphibian conservation in the state of Minas Gerais, and anurofaunal inventories in this region are needed (Drummond *et al.* 2005).

The first record was completed on 26 July 2010, when several tadpoles and one adult were found. Later, seven specimens were collected (collection permit by SISBIO, number 25082-1) using hooks baited with beetle larvae and adult orthopterans, as well as by manual collection (three of these individuals). The vouchers are deposited at the Amphibian Collection of the Herpetology Laboratory at the Universidade Federal de Minas Gerais (UFMG). Adult collections were made on 02, 08 and 29 October 2010 (UFMG 5737, adult male; UFMG 5736, young female and UFMG 5738, young male), on 30 October 2010 (UFMG 5741, adult female), on 11 and 12 December 2010 (UFMG 5739, young male and UFMG 5740, adult female) and 02 January 2011 (UFMG 5742, young male). Tadpoles were collected on 26 July 2010 (UFMG-G 1005 a, b, c), on 9 September 2010 (UFMG-G 1105) and 11 October 2010 (UFMG-G 1091 a, b and UFMG-G 1096 a, b, c, d). Adult specimens were killed by submersion in xilocaine 5% diluted in water, fixed in 10% formalin and maintained in 70% ethyl alcohol. Tadpoles were fixed and maintained in 10% formalin.

These specimens were compared with the original description (Pombal Jr. *et al.* 2003) and one paratopotype (MNRJ 26058). The measures of adults specimens (in mm) were taken with digital calipers to the nearest 0.01 mm and followed those used by Pombal Jr. *et al.* (2003) (Table 1). The measures of both female and male adults

are similar to specimens of the type series.

The record of *Megaelosia apuana* for the state of Minas Gerais represents a relevant contribution towards the knowledge of the geographic distribution and therefore the real conservation status of this species. More studies are necessary in order to verify the possible occurrence of this species in other areas of high altitude in the Doce River watershed in the state of Minas Gerais.

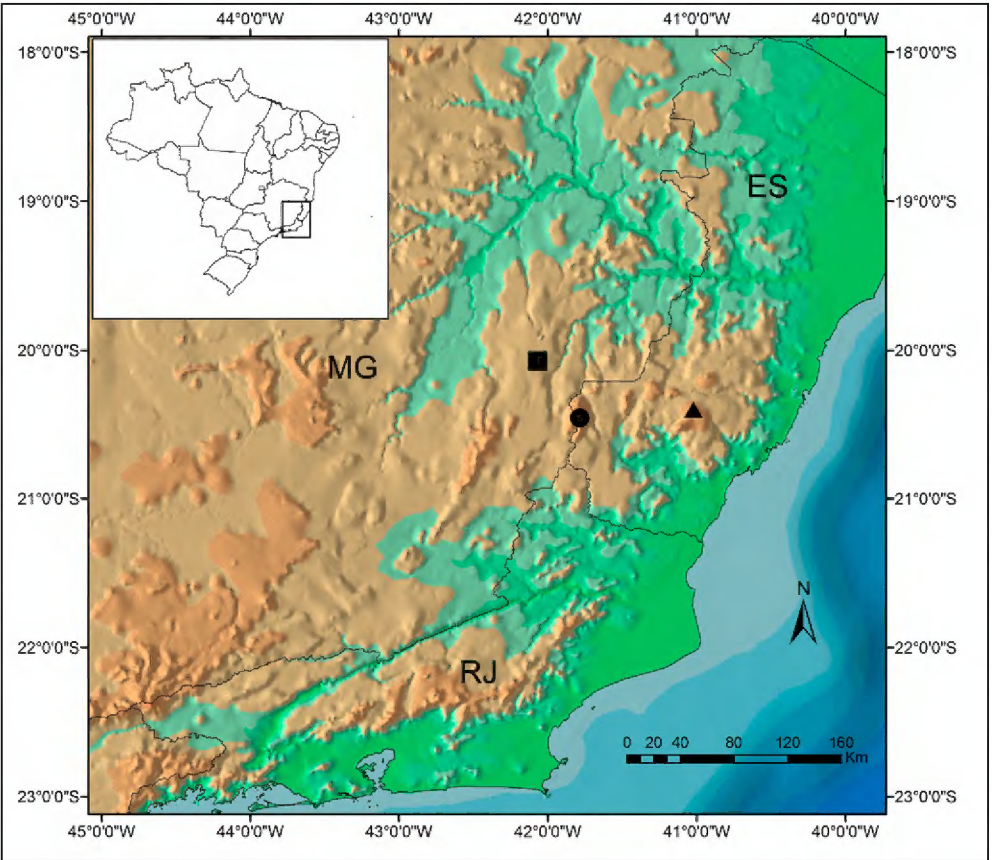


FIGURE 2. Geographic distribution map of *Megaelosia apuana* in southeastern Brazil. ▲ Fountainhead of Rio Jacu (type locality) and surroundings of Parque Estadual da Pedra Azul, municipality of Domingos Martins, state of Espírito Santo; ● Parque Nacional do Caparaó and ■ RPPN Mata do Sossego (new record), state of Minas Gerais, Brazil.

TABLE 1. Measures of adult specimens of *Megaelosia apuana* from the type series (MNRJ and CFBH; data from Pombal *et al.* 2003) and those collected at RPPN Mata do Sossego, Minas Gerais (UFMG). *Holotype. SVL (snout-vent length), HL (head length), HW (head width), ED (eye diameter), END (eyenostril distance), TD (tympanum diameter), IOD (in-ter-orbital distance), THL (thigh length), TBL (tibia length), and FL (foot length).

SPECIMENS	SEX	CHARACTERS									
		SLV	HL	HW	ED	END	TD	IOD	THL	TBL	FL
MNRJ 26057*	female	92.2	40.0	38.6	8.7	5.3	2.5	9.2	46.8	45.1	46.3
CFBH 03568	female	94.6	41.2	40.1	9.4	5.6	4.0	9.2	48.8	46.1	49.8
UFMG 5740	female	94.0	41.8	38.1	8.8	5.3	3.8	9.1	44.4	46.5	48.4
UFMG 5741	female	95.5	37.3	37.0	8.4	5.5	3.7	9.7	48.2	45.0	46.0
MNRJ 26058	male	78	34	32.1	8	5.2	2.5	8.1	41.2	39.7	38.3
MNRJ 26059	male	97.2	43	43.3	8.9	5.4	2.7	10.4	47.8	46.1	49
UFMG 5737	male	94.8	39.9	35.8	7.8	5.5	3.5	8.5	44.5	45.4	43.7
UFMG 5739	male	78.9	34.8	32.3	7.6	4.2	3.3	7.7	40.9	38.9	42.0

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LITERATURE CITED

Drummond, G.M., C.S. Martins, A.B.M. Machado, F.A. Sebaio and Y. Antonini (org). 2005. *Biodiversidade em Minas Gerais: um atlas para sua conservação*. 2ª ed. Belo Horizonte: Fundação Biodiversitas. 222 p.

Espírito Santo. 2005. Lista Estadual da Fauna Ameaçada de Extinção. Decreto de Lei número 1499-R de 13 de junho de 2005. *Diário Oficial, Vitória, Espírito Santo* 14 de junho de 2005: 4-5.

Frost, D.R. 2010. *Amphibian Species of the World: an Online Reference. Version 5.4 (8 April, 2010)*. Electronic Database accessible at <http://research.amnh.org/vz/herpetology/amphibia/>. Captured on 18 October 2010.

Giaretta, A.A. and O. Aguiar Jr. 1998. A new species of *Megaelosia* from the Mantiqueira range, south- eastern Brazil. *Journal of Herpetology* 32 (1):80-83.

Giaretta, A.A., W.C.A. Bokermann and C.F.B. Haddad. 1993. A review of the genus *Megaelosia* (Anura: Leptodactylidae) with a description of a new species. *Journal of Herpetology* 27:276-285.

IUCN 2010. *IUCN Red List of Threatened Species. Version 2010.4*. Electronic Database accessible at <http://www.iucnredlist.org/>. Captured on 29 December 2010.

Pombal Jr, J.P, G.M. Prado and C.N. Canedo. 2003. A New Species of Giant Torrent Frog, Genus *Megaelosia*, from the Atlantic Rain Forest

- of Espírito Santo, Brazil (Amphibia: Leptodactylidae). *Journal of Herpetology* 37(3): 453-460.
- Pombal Jr., J.P. 2004. *Megaelosia apuana*. In IUCN 2010. *IUCN Red List of Threatened Species. Version 2010.4*. Electronic Database accessible at <http://www.iucnredlist.org/>. Captured on 29 December 2010.
- Verdade, V.K. and M.T. Rodrigues. 2008. On the identity of *Cycloramphus jordanensis* Heyer, 1983 (Anura: Cycloramphidae). *Herpetologica* 64(4):452-457.

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